AMENDMENTS TO THE CLAIMS

1-50. **(Cancelled)**

51. **(Currently Amended)** A method of thermal analysis for determining an appropriate heating condition for heating an object introduced into and heated in a heating furnace in accordance with a required temperature profile, wherein said method comprises:

measuring a temperature at a measuring point of the object heated at each of a plurality of measuring locations of the heating furnace during a heating procedure for increasing the temperature of the object after introduction of the object into the heating furnace;

determining a heating characteristic at each of the measuring locations by using a heating temperature at the measuring location and the temperature measured at the measuring point of the object, the measuring location being a location through which the object passes along a transferring direction in the heating furnace; and

simulating a temperature profile of the object when a heating condition is changed by using the heating characteristic that is determined at each of the measuring locations,

~~A method according to claim 84,~~

wherein the heating characteristic at each of the measuring locations is an m-value defined by:

$$m = \frac{1}{t} \ln\left[\frac{Ta - Tint}{Ta - Ts}\right]$$

wherein ln is natural logarithm, Ta is heating temperature at the measuring location of the heating furnace, Tint is initial temperature at the measuring point of the object at the measuring

location, Ts is achieved temperature when the object is heated at the measuring location, and t is heating time at the measuring location.

52. **(Previously Presented)** A method according to claim 51, wherein the temperature Ts of the object is determined when the heating temperature Ta and the heating time t of the heating furnace are given, or the heating temperature Ta and the heating time t are determined when a required temperature Ts is given by using said m-values based on a following equation for heating:

$Ts=Ta - (Ta-Tint)\, e^{-m \cdot t}$

wherein e in the equation represents the base of natural logarithms.

53. **(Previously Presented)** A method according to claim 51, wherein said m-value is adjusted based on a predetermined equation of relationship between a blowing speed of heated air of the heating furnace and the m-value when the blowing speed of the heated air of the heating furnace is changed.

54-84. **(Canceled)**

85. **(Currently Amended)** A method of thermal analysis according to claim [[84]] 51, wherein the method further comprises:

making a judgment as to whether or not the simulated temperature profile of the object ~~to be heated~~ when the heating condition is changed satisfies a required temperature profile; and

determining the heating condition that satisfies the required temperature profile based on the judgment.